STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

FEE ASSESSMENT DOCUMENT (CYCLE NINETEEN)

April 2006

Office of Water Resources / Permitting Section
Priority Pollutant Monitoring
User Fee Program

Assessment DEM-UFP 04-06

Authority: These regulations are adopted in accordance with § 42-35 pursuant to § 46-12, and § 42.17 of the Rhode Island General Laws of 1956, as amended.

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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SECTION 1 Program Strategy

Chapter 46-12.4 of the Rhode Island General Laws authorized the Director of the Department of Environmental Management (DEM) to establish a system whereby fees are assessed to point sources for their discharges of wastewater into State waters. Consequently the Director developed a program to establish a data collection system (sampling and analysis of point source wastewater discharges) and a fee system. This report explains the program as proposed for the current cycle.

SECTION 2 Point Source Dischargers

The data from the analyses of cycle 16, 17 and 18 were used to determine which point sources would be sampled this cycle. Those point sources whose discharge only minimally impaired the water quality of the receiving waterway were excluded. In addition, the combined sewer overflows of municipal or sewer authority systems, although considered point source dischargers, were deferred for this cycle. The Director reserves the right to add or delete point sources as necessary to satisfy the intent of the regulations. The point source dischargers included for this cycle are listed in Appendix A.

SECTION 3 Priority Pollutants

The wastewater sample collected from each point source will be analyzed for either all or some of these pollutant groups: Conventional Pollutants, Organic Priority Pollutants, and Metal Priority Pollutants.

The Conventional Pollutants will be determined using these tests: 5-day biochemical oxygen demand (BOD_5), total suspended solids, settleable solids, and fecal coliform bacteria.

The Organic Priority Pollutants are those pollutants designated priority pollutants by the EPA except metals and total cyanide.

The Metal Priority Pollutants are those pollutants designated priority pollutant metals by the EPA and total cyanide.

A complete list of the pollutants, arranged by group, is given in Appendix B. Analysis for asbestos and 2,3,7,8 tetrachlorodibenzo-p-dioxin (TCDD) will be deferred for this cycle.

SECTION 4 Sampling Frequency for Point Source Dischargers

The sampling frequency is related to the environmental harm (Y) that a point source's discharge causes and was assessed through an equation that is a function of the pollutant's ability to degrade the receiving waterway and the daily mass of pollutants discharged.

A. Assessment of Environmental Harm

1. **Pollutant's Ability to Degrade the Receiving Waterway** - The pollutant's ability to degrade the receiving waterway was assessed by considering two types of environmental harm:
    (a) harm to aquatic organisms
    (b) harm to humans

    The harm to aquatic organisms was determined by multiplying aquatic organism toxicity by persistence.

    Aquatic organism toxicity is the maximum concentration of the pollutant acceptable. The EPA has established concentration limits in ambient water for almost every priority pollutant. Concentrations above these limits are considered toxic to an aquatic organism.

    Persistence is the tendency of a pollutant to remain in the aquatic environment. Five transformation reactions were used to assess a pollutant's persistence: biodegradation, volatilization, photolysis, hydrolysis, and oxidation.

    The harm to humans was determined by multiplying human toxicity by a biological concentration factor.

    Human toxicity is based on a pollutant's potential to cause each of these health effects: infertility, fetotoxicity, and carcinogenicity.

TABLE I
ENVIRONMENTAL HARM VALUE FOR EACH POLLUTANT

PRIORITY POLLUTANT	ENVIRONMENTAL HARM VALUE	PRIORITY POLLUTANT	ENVIRONMENTAL HARM VALUE
DDT (4,4)	2.2	Copper	30.0
Heptchlor Epoxide	8.0	Butylbenzylphthalate	30.5
Toxaphene	8.7	Chromium III	30.5
Chlordane	9.0	Lead	33.0
Mercury	10.2	DDE (4,4)	33.7
Dieldrin	11.0	Dibenzo (a,h) anthracene	34.4
Heptchlor	11.5	Beryllium	35.7
beta-BHC	12.8	Chrysene	36.2
gamma-BHC	12.8	Diphenylhydrazine (1,2)	36.5
N-nitrosodimethylamine	13.0	Dimethyphthalate	36.5
alpha-BHC	14.0	Di-n-octylphthalate	36.6
Silver	14.5	N-nitrosodiphenylamine	37.3
Endrin	15.5	2,4 Dichlorophenol	39.8
DDD (4,4)	15.7	Pyrene	39.8
delta-BHC	16.3	Diethylphthalate	40.2
Nickel	17.0	Benzidine	40.7
Endolsulfan sulfate	17.7	Zinc	41.0
Arsenic	18.0	Fluoranthene	41.2
Benzo (ghi) perylene	18.0	Aldrin	42.5
Chromium VI	18.5	Penachlorophenol	43.7
PCB's	18.7	Bis(2 chloroethoxy)methane	43.7
Endrin Aldehyde	20.5	Benzo (a) anthracene	44.2
4 Bromophenylphenylether	21.8	Parachlorametacresol	44.5
Thallium	25.5	4 Chlorophenylphenylether	47.0
Bis(2 ethylhexyl)phthalate	26.7	Dinitrotoluene (2,6)	47.2
Indeno(1,2,3-cd)pyrene	27.0	2,4,6 Trichlorophenol	48.0
Endosulfan (alpha)	27.5	Phenol	49.0
Endosulfan (beta)	27.5	2-Chloronapthalene	50.0
Cadmium	27.7	Antimony	51.0
Selenium	28.0	Dichlorobenzidine (3,3)	51.2
N-nitrosodi-n-propylamine	29.5	2-Chlorophenol	52.0

TABLE I
ENVIRONMENTAL HARM VALUE FOR EACH POLLUTANT

PRIORITY POLLUTANT	ENVIRONMENTAL HARM VALUE	PRIORITY POLLUTANT	ENVIRONMENTAL HARM VALUE
Acrylontrile	53.2	Bromoform	78.2
Vinyl chloride	53.4	Acenaphthene	78.5
Benzo (a) pyrene	53.5	Hexachlorocyclopentadiene	79.4
Benzene	54.0	Bis(2 chloroethyl)ether	79.5
Benzo (k) fluoranthene	55.0	Hexachloroethane	80.2
2,4 Dinitrophenol	55.5	Trichlorobenzene	81.3
1,1,2,2 Tetrachloroethane	56.2	Dinitrotoluene (2,4)	82.7
4,6 Dinitro-o-cresol	56.5	Dichlorobenzene (1,3)	83.2
Acrolein	60.8	Chloroform	83.5
Di-n-butylphthalate	61.0	Monochlorobenzene	86.0
Trichloroethylene	63.0	Carbon tetrachloride	87.1
Hexachlorobenzene	63.0	Anthracene	89.3
Fluorene	64.0	Isophorone	92.2
Phenanthrene	64.0	Methylene chloride	97.0
2,4 Dimethylphenol	64.7	Chloroethane	98.1
Hexachlorobutadiene	64.7	Bis(2 chloroisopropyl)ether	98.7
Acenapthylene	66.0	Dichloroethylene (1,1)	100.2
Tetrachloroethylene	68.7	Dichlorobromomethane	100.7
Nitrobenzene	70.0	2-Nitrophenol	101.2
3,4 Benzofluoranthene	70.4	4-Nitrophenol	101.2
1,1,2 Trichloroethane	72.0	Chloromethane	101.8
Chlorodibromomethane	73.5	1,3 Dichloropropene	104.7
Dichlorobenzene (1,2)	74.5	Bromomethane	106.7
Dichlorobenzene (1,4)	74.5	Bis(chloromethyl)ether	110.2
2 Chloroethylvinylether	74.6	1,1,1 Trichloroethane	115.2
Toluene	75.7	1,2 Dichloroethane	117.0
Ethylbenzene	76.2	1,2 trans.Dichloroethylene	117.2
Cyanides	77.0	1,2 Dichloropropane	118.8
Trichlorofluoromethane	77.0	1,1 Dichloroethane	121.0
Napthalene	77.5		
Dichlorodifluoromethane	78.2		

Bioconcentration is the tendency of a pollutant to concentrate in an aquatic organism and was estimated by the bioconcentration factor, defined as the pollutant concentration in the fish relative to the surrounding water. It is assumed that the only human exposure to pollutants discharged into surface waters is through the ingestion of contaminated organisms.

A total environmental harm value was determined for each pollutant simply by adding the aquatic and human harm values. The importance of human life in relation to aquatic life required, however, that the human harm value be multiplied by a subjective weight factor. This problem was overcome by plotting the priority pollutant versus the aquatic and human harm values on a graph; the plotted values were added to determine an environmental harm value. Table I lists the environmental harm values for each pollutant.

The environmental harm values were used to divide the pollutants into 5 groups: These groups are labeled A through E in descending order of harm, i.e., group A pollutants are more harmful than group B pollutants, group B pollutants more harmful than group C pollutants, etc. An additional group, labeled F, includes conventional pollutants. Grouping the pollutants lessens the effect of error associated with the total harm values. A complete listing of the pollutant groups is given in Appendix C.

2. **Daily Mass of Pollutants** - Daily mass values were calculated for each pollutant group by multiplying the total concentration of pollutants by the daily flow. An average value was determined when more than one set of data was available. A complete list of these values is shown in Appendix D. The "Total" column is the sum of the values in groups A through E and represents the average daily mass of priority pollutants discharged by the point source. Total daily mass values have also been calculated for each pollutant group and appear on the bottom page of the appendix.

3. **Environmental Harm Equation** - The environmental harm Y, caused by a point source's discharge is given by:

$$Y = \left[(a)\frac{\text{daily mass from group A for a point source}}{\text{total daily mass from group A for all point sources}} + (b)\frac{\text{" group B "}}{\text{" Group B "}} + (c)\frac{\text{" group C "}}{\text{" Group C "}} + (d)\frac{\text{" group D "}}{\text{" Group D "}} + (e)\frac{\text{" group E "}}{\text{" Group E "}} + (f)\frac{\text{" group F "}}{\text{" Group F "}}\right]$$

where a,b,c,d,e, and f are weight factors that sum to 1.0.

4. **Weight Factors** - The weight factors assess the harm caused to the environment by each pollutant group. Values for the weight factors were calculated from an algebraic expression developed using the environmental harm values in Table I. The values for a,b,c,d,e, and f are .498, .200, .125,.090, .066, and .02 respectively.

5. **Calculation of Environmental Harm** - The values for the weight factors were substituted into the environmental harm formula, and using the daily mass values from Appendix D, an environmental harm value was calculated for each point source.

B. Determination of Sampling Frequency

Table II was used to determine the number of samples per year that will be collected at each point source. A complete list of the sampling frequency for each point source is given in Appendix E.

TABLE II
SAMPLING FREQUENCY

Environmental Harm Range	Samples / Year
$Y \leq .01$	0
$.01 < Y \leq .1$	1
$.1 < Y \leq 1$	1
$1 < Y \leq 10$	1
$Y \geq 10$	2

SECTION 5 Monitoring Schedule

Appendix F lists the number of priority pollutant analyses that will be performed for each point source discharger.

SECTION 6 Sampling Procedure

The sampling of all point source dischargers will be continuous over a 24-hour period, except for samples collected for volatile organic and fecal coliform bacteria analyses. Those samples will be instantaneous.

No notification will be given prior to sampling the point source discharger except as necessary to coordinate bioassay sampling, which is the responsibility of the individual facility and not a requirement of this program.

SECTION 7 Sample Analyses

The Division of Laboratories, Rhode Island Department of Health and ESS Laboratory will analyze all samples collected for this program. All analytical testing will be performed in accordance with the methods specified in the latest edition of Standard Methods for the Examination of Water and Wastewater, APHA 18th edition, 1992; Methods for Chemical Analysis of Water and Wastes, EPA 600/4-79-020, 1983; Methods for the Determination of Organic Compounds in Drinking Water, EPA 600/4-88/039, December 1988; Guidelines Establishing Test Procedures for the Analysis of Pollutants, Title 40, EPA Part 136 Federal Register, Vol. 49, No. 209, October 26, 1984 and Vol. 50, No. 3, January 4, 1985, Vol. 52, No. 171, September 3, 1987, Vol.60, No. 64, April 4, 1995; Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA SW-846, 3rd edition and updates.

Application for alternate test procedures shall be in accordance with paragraph 136.4, Guidelines Establishing Test Procedures for the Analysis of Pollutants, as amended, Title 40, EPA Part 136 Federal Register, Vol. 41, No. 232, December 1, 1976, or other procedures as required by EPA, unless written approval for any deviation is given in advance by the associate Director for Water Quality Management, DEM, or an authorized agent.

SECTION 8 Fees to be Assessed

In accordance with Section 6.00 of the Rules and Regulations pertaining to a User Fee System for Point Source Dischargers that Discharge Pollutants into the Waters of the State, this program will be self-sustaining and independent of any other programs conducted by the DEM. The total administrative cost, including the cost of analyses, will be allocated to each point source in proportion to the type and frequency of sampling performed. The expected cost of sampling will be assessed to each point source prior to actual sampling. Appropriate adjustments, including rebates, will be made with each point source at the end of the cycle. The fee assessed to each point source will not exceed the cost to the DEM of sampling that point source's discharge.

The estimated resources required by the DEM for this cycle, exclusive of analytical services, are shown in Appendix G.

The analytical costs by the Division of Laboratories, Rhode Island Department of Health are shown in Appendix H.

An example of the fee calculation is given in Appendix I. The figures used are based upon estimates that are subject to adjustment.

The proposed fee for each point source is shown in Appendix J.

APPENDIX A - POINT SOURCE DISCHARGERS

1. BRADFORD DYEING ASSOC., INC.
2. BRISTOL WWTF
3. BURRILLVILLE WWTF
4. CLARIANT CORPORATION
5. CRANSTON WWTF
6. EAST GREENWICH WWTF
7. EAST PROVIDENCE WWTF
8. JAMESTOWN WWTF
9. KENYON INDUSTRIES, INC.
10. NARRAGANSETT WWTF
11. NARRAGANSETT BAY COMMISSION (BUCKLIN POINT)
12. NARRAGANSETT BAY COMMISSION (FIELDS POINT)
13. NEW SHOREHAM WWTF
14. NEWPORT WWTF
15. OKONITE COMPANY
16. RI PORT AUTHORITY WWTF
17. SMITHFIELD WWTF
18. SOUTH KINGSTOWN WWTF
19. WARREN WWTF
20. WARWICK WWTF
21. WESTERLY WWTF
22. WEST WARWICK WWTF
23. WOONSOCKET WWTF

APPENDIX B - PRIORITY POLLUTANTS

Metal Priority Pollutants

A. Metals

1. Antimony
2. Arsenic
3. Beryllium
4. Cadmium
5. Chromium
6. Copper
7. Lead
8. Mercury
9. Nickel
10. Selenium
11. Silver
12. Thallium
13. Zinc

B. Miscellaneous

1. Asbestos*
2. Total Cyanide

*Deferred for this program cycle

APPENDIX B (continued)
Priority Pollutants

Organic Priority Pollutants

A. Volatile Organic Compounds

1. Acrolein
2. Acrylonitrile
3. Benzene
4. Carbon Tetrachloride
5. Chlorobenzene
6. 1,1 – Dichloroethane
7. 1,2 - Dichloroethane
8. 1,1,1 – Trichloroethane
9. 1,1,2 – Trichloroethane
10. 1,1,2,2 - Tetrachloroethane
11. Chloroethane
12. 2 - Chloroethyl vinyl ether
13. Chloroform
14. 1,1 – Dichloroethylene
15. 1,2 - Trans-dichloroethylene
16. 1,3 - Dichloropropene
17. Ethylbenzene
18. Methylene Chloride
19. Methyl Chloride
20. Methyl Bromide
21. Bromoform
22. Dichlorobromomethane
23. 1,2 - Dichloropropane
24. Chlorodibromomethane
25. Tetrachloroethylene
26. Toluene
27. Trichloroethylene
28. Vinyl Chloride
29. Xylene

B. Other Base/Neutral Extractable Organic Compounds

1. Benzidine
2. 1,2,4 - Trichlorobenzene
3. Hexachlorobenzene
4. Hexachloroethane
5. Bis (2-chloroethyl) Ether
6. 2 - Chloronapthalene
7. 1,2 - Dichlorobenzene
8. 1,3 – Dichlorobenzene
9. 1,4 – Dichlorobenzene
10. 3,3 - Dichlorobenzidine
11. 2,4 - Dinitrotoluene
12. 2,6 - Dinitrotoluene
13. 1,2 - Diphenylhydrazine
14. 4 - Chlorophenyl Phenyl Ether
15. 4 - Bromophenyl Phenyl Ether
16. Bis (2-chloroisopropyl) Ether
17. Bis (2-chloroethoxy) methane
18. Hexachlorobutadiene
19. Hexachlorocyclopentadiene
20. Isophorone
21. Nitrobenzene
22. N - nitrosodimethylamine
23. N - nitrosodiphenylamine
24. N - nitrosodipropylamine
25. Butyl Benzyl Phthalate
26. Dibutyl Phthalate
27. Dioctyl Phthalate
28. Diethyl Phthalate
29. Dimethyl Phthalate
30. Bis (2-ethylhexyl) Phthalate

C. Poly-Aromatic Hydrocarbons

1. Acenaphthene
2. Fluoranthene
3. Naphthalene
4. Benzo (a) Anthracene
5. Benzo (a) Pyrene
6. Benzo (b) Fluoranthene
7. Benzo (k) Fluoranthene
8. Chrysene
9. Acenaphthylene
10. Anthracene
11. Benzo (g,h,i) Perylene
12. Fluorene
13. Phenanthrene
14. Dibenzo (a,h) Anthracene
15. Indeno (1,2,3-cd) Pyrene
16. Pyrene

Priority Pollutants

Organic Priority Pollutants

D. Acid Extractable Organic Compounds

1. 2,4,6 - Trichlorophenol
2. 4 - Chloro - M – Cresol
3. 2 – Chlorophenol
4. 2 – Nitrophenol
5. Penta Chlorophenol
6. 2,4 - Dimethylphenol
7. 4 - Nitrophenol
8. 2,4 - Dinitrophenol
9. 2 - Methyl - 4,6 - Dinitrophenol
10. 2,4 - Dichlorophenol
11. Phenol

E. Pesticides and PCB's

1. Aldrin
2. Dieldrin
3. Chlordane
4. 4,4' – DDT
5. 4,4' – DDE
6. 4,4' – DDD
7. Endosulfan I
8. Endosulfan II
9. Endosulfan Sulfate
10. Endrin
11. Endrin Aldehyde
12. Heptachlor
13. Heptachlor Epoxide
14. a - BHC
15. b - BHC
16. g - BHC
17. d - BHC
18. PCB - 1016
19. PCB - 1221
20. PCB - 1232
21. PCB - 1242
22. PCB - 1248
23. PCB - 1254
24. PCB - 1260
25. Toxaphene
26. 2,3,7,8 - Tetrachlorodibenzo -p - Dioxin(TCDD)*

*Deferred for this program cycle.

APPENDIX C - POLLUTANT GROUPS

GROUP A	GROUP B	GROUP C
1. Arsenic	l. Aldrin	1. Acenapthylene
2. a - BHC	2. Enzidine	2. Acrolein
3. d - BHC	3. Benzo(a)anthracene	3. Acrylonitrile
4. g - BHC (lindane)	4. Beryllium	4. Antimony
5. b - BHC	5. Bis(2-chloroethoxy)methane	5. Benzene
6. Benzo (ghi) perylene	6. Bis(2 ethylhexyl)-phthalate	6. Benzo (a) pyrene
7. 4-Bromophenylphenyl ether	7. Butylbenzylphthalate	7. Benzo (k) fluoranthene
8. Chlordane	8. Cadmium	8. 2-Chloronapthalene
9. DDD (4,4')	9. Chromium (total)	9. 2-Chlorophenol
10. DDT (4,4')	10. Chrysene	10. 4 Chlorophenylphenyl ether
11. Dieldrin	11. Copper	11. Dichlorobenzidine (3,3)
12. Endosulfan Sulfate	12. DDE (4,4')	12. 2,4 Dimethylphenol
13. Endrin	13. Dibenzo (a,h) anthracene	13. Di-n-butylphthalate
14. Endrin aldehyde	14. 2,4 Dichlorophenol	14. 4,6 Dinitro-o-cresol
15. Heptachlor epoxide	15. Diethylphthalate	15. 2,4 Dinitrophenol
16. Heptachlor	16. Dimethylphthalate	16. Dinitrotoluene (2,6)
17. Mercury	17. Di-n-octylphthalate	17. Fluorene
18. Nickel	18. Diphenylhydrazine (1,2)	18. Hexachlorobenzene
19. N-nitrosodimethylamine	19. Endosulfan (alpha)	19. Hexachlorobutadiene
20. Silver	20. Endosulfan (beta)	20. Phenanthrene
21. PCB's	21. Fluoranthene	21. Phenol
22. Toxaphene	22. Indeno (1,2,3 - cd) pyrene	22. 1,1,2,2 Tetrachloroethane
	23. Lead	23. Trichloroethylene
	24. N-nitrosodi-n-propylamine	24. 2,4,6 Trichlorophenol
	25. N-nitrosodi-phenylamine	25. Vinyl Chloride
	26. Parachlorametacresol	
	27 Pentachlorophenol	
	28. Pyrene	
	29. Selenium	
	30. Thallium	
	31. Zinc	

APPENDIX C (continued)
Pollutant Groups

GROUP D	GROUP E
1. Acenapthene	1. Bis (2 chloroisopropyl) ether
2. Anthracene	2. Bis (chloromethyl) ether
3. 3,4 Benzofluoranthene	3. Bromomethane
4. Bis (2 chloroethyl) ether	4. Chloroethane
5. Bromoform	5. Chloromethane
6. Carbon tetrachloride	6. Dichlorobromomethane
7. Chlorodibromomethane	7. 1,1 Dichloroethane
8. 2 Chloroethylvinyl ether	8. 1,2 Dichloroethane
9. Chloroform	9. Dichloroethylene (1,1)
10. Cyanides	10. 1,2 Dichloropropane
11. Dichlorobenzene (1,2)	11. 1,3 Dichloropropene
12. Dichlorobenzene (l,3)	12. Methylene chloride
13. Dichlorobenzene (1,4)	13. 2-Nitrophenol
14. Dichlorodifluoromethane	14. 4-Nitrophenol
15. Dinitrotoluene (2,4)	15. 1,2 Transdichloroethylene
16. Ethylbenzene	16. 1,1,1 Trichloroethane
17. Hexachlorocyclopentadiene	
18. Hexachloroethane	
19. Isophorone	
20. Monochlorobenzene	
21. Naphthalene	
22. Nitrobenzene	
23. Tetrachloroethylene	
24. Toluene	
25. Trichlorobenzene (1,2,4)	
26. Trichloroethane (1,1,2)	
27. Trichlorofluoromethane	

APPENDIX D - DAILY MASS VALUES IN POUNDS
Cycle 16, 17 and 18 Encompassing (2003 – 2005)

FACILITY	GROUP A	GROUP B	GROUP C	GROUP D	GROUP E	GROUP F	TOTAL
Bradford Dyeing Association	0.074	0.479	0.159	0.000	0.000	375.371	0.712
Bristol	0.003	1.013	0.000	0.061	0.000	563.806	1.077
Burrillville	0.001	0.326	0.000	0.018	0.000	82.071	0.345
Clariant Corp.	0.082	0.026	0.000	0.239	0.002	229.656	0.348
Cranston	1.519	4.093	0.000	0.737	0.300	846.343	6.650
East Greenwich	0.002	0.861	0.000	0.046	0.000	266.236	0.909
East Providence	0.005	2.349	0.000	0.065	0.021	825.104	2.441
Jamestown	0.000	0.086	0.000	0.049	0.005	29.665	0.140
Kenyon Industries	0.001	1.650	0.052	0.006	0.000	504.964	1.709
Narragansett	0.025	0.452	0.000	0.060	0.016	76.536	0.554
NBC-Bucklin Point	7.446	11.732	0.000	0.106	0.000	28.7.272	19.284
NBC-Fields Point	15.200	34.593	0.158	16.283	1.119	9118.435	67.353
New Shoreham	0.000	0.177	0.000	0.008	0.004	16.046	0.189
Newport	0.004	1.694	0.000	0.209	0.0022	2164.113	1.929
Okonite Company	0.000	.0008	0.002	0.004	0.001	0.707	0.015
RI Port Authority	0.014	0.662	0.008	0.000	0.003	156.217	0.687
Smithfield	0.001	0.745	0.000	0.032	0.000	448.331	0.779
South Kingstown	0.005	2.074	0.000	0.027	0.024	313.829	2.131
Warren	0.003	0.143	0.000	0.201	0.000	45.119	0.346
Warwick	0.019	2.180	0.000	0.457	0.114	296.570	2.770
Westerly	0.021	1.000	0.000	0.269	0.171	235.060	1.462
West Warwick	0.643	2.235	0.000	0.025	0.000	468.764	2.903
Woonsocket	0.190	2.799	0.000	1.191	0.263	416.037	4.442
TOTAL	25.261	71.378	0.379	20.091	2.067	20286.253	119.176

APPENDIX E - ENVIRONMENTAL HARM / SAMPLES PER YEAR
Based on Cycles 15, 16 and 17

Facility Name	Environmental Harm %	Samples
Bradford Dyeing Association	5.57	1
Bristol	0.37	1
Burrillville	0.11	1
Clariant Corp.	0.30	1
Cranston	5.51	1
East Greenwich	0.29	1
East Providence	0.85	1
Jamestown	0.07	1
Kenyon Industries	2.24	1
Narragansett	0.26	1
NBC-Bucklin Point	18.29	2
NBC-Fields Point	56.62	2
New Shoreham	0.07	1
Newport	0.86	1
Okonite Company	0.07	1
RI Port Authority	0.50	1
Smithfield	0.27	1
South Kingstown	0.71	1
Warren	0.14	1
Warwick	1.25	1
Westerly	1.95	1
West Warwick	1.01	1
Woonsocket	2.57	1
TOTAL	**99.9**	**25**

APPENDIX F - MONITORING SCHEDULE / FULL SCAN

FACILITY	CONVENTIONAL	METAL	VOLATILE	EXTRACTABLE	FECAL	PESTICIDE
BRADFORD DYE	1	1	1	1	1	1
BRISTOL	1	1	1	1	1	1
BURRILLVILLE	1	1	1	1	1	1
CLARIANT CORP.	1	1	1	1	1	1
CRANSTON	1	1	1	1	1	1
EAST GREENWICH	1	1	1	1	1	1
EAST PROVIDENCE	1	1	1	1	1	1
JAMESTOWN	1	1	1	1	1	1
KENYON INDUSTRIES	1	1	1	1	1	1
NARRAGANSETT	1	1	1	1	1	1
NBC - BUCKLIN POINT	2	2	2	2	2	2
NBC - FIELD'S POINT	2	2	2	2	2	2
NEW SHOREHAM	1	1	1	1	1	1
NEWPORT	1	1	1	1	1	1
OKONITE COMPANY	1	1	1	1	1	1
R.I.PORT AUTHORITY	1	1	1	1	1	1
SMITHFIELD	1	1	1	1	1	1
SOUTH KINGSTOWN	1	1	1	1	1	1
WARREN	1	1	1	1	1	1
WARWICK	1	1	1	1	1	1
WEST WARWICK	1	1	1	1	1	1
WESTERLY	1	1	1	1	1	1
WOONSOCKET	1	1	1	1	1	1

APPENDIX G - CAPITAL AND OPERATING COST ESTIMATES
COST TO DEM

A. Capital Cost

1. Sampling Equipment		$ 500.00	
CAPITAL COST			**$ 500.00**

B. Operating Cost

1. Labor			
Environmental Scientist	.45 FTE	$56949	$25627.00
2. Fringe Benefits	.45 FTE	$31878	$14345.00
OPERATING COST			**$39972.00**

TOTAL COST ESTIMATE	**$40472.00**

APPENDIX H – ANALYTICAL COST
DOH Laboratory

1. Analytical Costs

(WLD)	Metal Priority Pollutants		$290.00
	Antimony	$20.00	
	Arsenic	$20.00	
	Beryllium	$20.00	
	Cadmium	$20.00	
	Chromium	$20.00	
	Copper	$15.00	
	Cyanide (Total)	$35.00	
	Lead	$20.00	
	Mercury	$30.00	
	Nickel	$15.00	
	Selenium	$20.00	
	Silver	$20.00	
	Thallium	$20.00	
	Zinc	$15.00	
(SM1)	Coliform Bacteria		$ 25.00
(WLC)	Conventional Pollutants		$ 60.00
	BOD	$35.00	
	TSS/Seattleable	$25.00	
(TO11)	Volatile Priority Pollutants		$ 130.00
(TO19)	Extractable-Priority Pollutants		$ 225.00
(PE12)	Pesticides/PCB's (Method608)		$ 117.00

Full Scan Analytical Cost……..$847.00

APPENDIX I - EXAMPLE OF USER FEE CALCULATION

A. DEM Cost

1. Total Program Cost

Total Operating Cost	$39972.00
Total Capital Cost	$ 500.00

Total Program Cost **$40472.00**

2. Cost Per Sample

$40472 / 25 samples	$1619.00 / sample

B. Calculation of User Fee

Example1: All Facilities (except NBC and New Shoreham)

1. Analytical Cost (Full Scan)
   ($847 / sample) x (1 sample) $ 847.00

2. Cost per Sample
   ($1619 / sample) x (1 samples) $1619.00

TOTAL ANNUAL FEE **$2466.00**

Example2: NBC Facilities

1. Analytical Cost (Full Scan)
   ($847 / sample) x (2 samples) $1694.00

2. Cost per Sample
   ($1619 / sample) x (2 samples) $3230.00

TOTAL ANNUAL FEE **$4924.00**

Example3: New Shoreham

1. Analytical Cost (Full Scan)
   ($847 / sample) x (1 sample) $ 847.00

2. Cost per Sample
   ($1619 / sample) x (1 samples) $1619.00
3. Ferry Cost (2 days) $ 186.00

TOTAL ANNUAL FEE **$2652.00**

APPENDIX J - INDIVIDUAL TOTAL COST

FACILITY	ANALYTICAL C0ST	OPERATING/CAPITAL	TOTAL COST
BRADFORD DYEING ASSOC.	$847	$1619	$2466.00
BRISTOL WWTF	$847	$1619	$2466.00
BURRILLVILLE WWTF	$847	$1619	$2466.00
CLARIANT CORPORATION	$847	$1619	$2466.00
CRANSTON WWTF	$847	$1619	$2466.00
EAST GREENWICH WWTF	$847	$1619	$2466.00
EAST PROVIDENCE WWTF	$847	$1619	$2466.00
JAMESTOWN WWTF	$847	$1619	$2466.00
KENYON INDUSTRIES	$847	$1619	$2466.00
NARRAGANSETT WWTF	$847	$1619	$2466.00
NBC - BUCKLIN POINT	$1694	$3230	$4924.00
NBC - FIELD'S POINT	$1694	$3230	$4924.00
NEW SHOREHAM WWTF	$847	**$1805	$2652.00
NEWPORT WWTF	$847	$1619	$2466.00
OKONITE COMPANY	$847	$1619	$2466.00
R.I. PORT AUTHORITY	$847	$1619	$2466.00
SMITHFIELD WWTF	$847	$1619	$2466.00
SOUTH KINGSTOWN WWTF	$847	$1619	$2466.00
WARREN WWTF	$847	$1619	$2466.00
WARWICK WWTF	$847	$1619	$2466.00
WEST WARWICK WWTF	$847	$1619	$2466.00
WESTERLY WWTF	$847	$1619	$2466.00
WOONSOCKET WWTF	$847	$1619	$2466.00
TOTAL	$21175.00	$40645.00	$61820.00

** Includes ferry fare ($186.00)